

- Sub B1
31. A method of stimulating an anti-tumor immune response or treating a neoplastic disease, comprising administering to a subject a composition comprising either a cell genetically altered to produce a cytokine at an elevated level or the progeny of such a cell, wherein the cytokine is stably associated in the cell outer membrane.
32. The method of claim 31, wherein the cytokine is selected from the group consisting of IL-4, GM-CSF, IL-2, TNF- α , and M-CSF.
33. The method of claim 31, wherein the cell is a cancer cell.
- A6
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Sub
B2
34. The method of claim 31, wherein the cell is from a cancer of the same tissue type as a tumor in the subject.
35. The method of claim 33, wherein the cancer is an ovarian cancer or a brain cancer.
36. The method of claim 31, wherein the cell is allogeneic to the subject.
37. The method of claim 31, wherein the cell is histocompatibly identical to the subject.
38. The method of claim 31, wherein the composition further comprises a tumor-associated antigen, and wherein the combination of the cytokine and the tumor-associated antigen in the composition is effective in treating a neoplastic disease or eliciting an anti-tumor immunological response in the subject.
39. The method of claim 38, wherein the tumor-associated antigen is obtained from a cell autologous to the subject.
40. The method of claim 38, wherein the tumor-associated antigen is expressed by the same cells expressing the membrane-associated cytokine.

41. The method of claim 38, wherein the composition comprises a combination of:
- a) the cell expressing the membrane-associated cytokine; and
 - b) a tumor cell autologous to the subject;
- wherein the combination is effective in treating a neoplastic disease or eliciting an anti-tumor immunological response in the subject.
42. The method of claim 41, wherein the tumor cell is a primary tumor cell dispersed from a solid tumor obtained from the subject.
43. The method of claim 41, wherein the tumor cell is a glioma, a glioblastoma, a gliosarcoma, an astrocytoma, or an ovarian cancer cell.
44. The method of claim 41, wherein the tumor cell is inactivated.
45. The method of claim 31, wherein the cell expressing the membrane-associated cytokine is inactivated.
46. The method of claim 31, wherein the cell produces a secreted cytokine in addition to the cytokine stably associated in the outer membrane.
47. The method of claim 31, wherein a majority of the cytokine produced by the cell is present on the outer membrane of the cell.
48. The method of claim 38, wherein the cytokine is selected from the group consisting of IL-4, GM-CSF, IL-2, TNF- α , and M-CSF.
49. The method of claim 31, wherein the composition comprises at least two cells, each of which has been genetically altered to produce a different cytokine at an elevated level, or is the progeny of such a cell, and wherein each cytokine is stably associated in the outer membrane of the cell.

Sub B5
50. A method of stimulating an anti-tumor immune response or treating a neoplastic disease, comprising administering to a subject a composition comprising a tumor associated antigen and a population of cells expressing a transmembrane cytokine at a [level sufficient] to stimulate an immune response to the tumor associated antigen in the subject.

51. The method of claim 31, wherein the cell is a human cell.

52. The method of claim 31, wherein the cytokine naturally occurs as a membrane cytokine.

53. The method of claim 31, wherein the cytokine is a fusion protein comprising a heterologous transmembrane region.

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54. The method of claim 31, wherein the cell has been transduced with a retroviral expression vector, or is the progeny of such a cell.

Sub B6
55. The method of claim 31, which is a method for stimulating a primary immune response.

56. The method of claim 31, which is a method for stimulating a secondary immune response.

57. The method of claim 31, which is a method for treating a neoplastic disease.

58. The method of claim 31, further comprising providing the cytokine expressing cell that is present in the composition.

59. The method of claim 38, further comprising providing the tumor associated antigen that is present in the composition.

60. The method of claim 31, further comprising transducing a cancer cell with an expression vector encoding the membrane-associated cytokine.

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